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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/465,006	12/16/1999	Michael Heckmeier	MERCK-2073	8358

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18
EXAMINER

WU, SHEAN CHIU

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/465,006

Applicant(s)

HECKMEIER ET AL.

Examiner

Shean C Wu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. above.

The reference discloses liquid crystal compounds represented by formula (1), which exhibit not only a negative anisotropy value but also extremely high voltage retention and low threshold voltages, are reduced in the temperature dependence of these properties, are excellent in compatibility with other liquid crystal materials. The liquid crystal composition comprise other suitable compounds are expressed by the general formulae (2)-(12). The suitable compounds and their properties are discussed in the specification. See formulae (2)-(6) on col. 23, lines 40-46 and col. 28, lines 23-51, which have a positive dielectric anisotropy value (corresponding to the present formula II). The general formulae (7)-(9) are correspond to the present formula III (see col. 32, lines 7-22). The general formulae (10)-(12) with left ring being a cyclohexene overlap the claimed formula II. See col. 33, line 37 to col. 34, line 7. The compounds and their properties of Examples 25 and 26 are closest to the present claims. The reference differs from the claims in that the claims have more specific components in claimed medium. The claimed medium is not exemplified in the reference. However, the compounds and

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their concentrate ranges of the formulae III1 and IIIa-IIIId are all disclosed and taught by the reference. With respect to claims 24, 27-28, 30-31 and 33-34, the reference differs from the claims in that the claims have more specific values for the liquid crystal properties. The reference teaches that compounds expressed by one of the general formulas (7) to (9) have a small absolute value of dielectric anisotropy and are close to neutral and the compounds expressed by the general formula (7) are used principally for the purpose of adjusting viscosity or adjusting optical anisotropy value. The reference further teaches that the compounds expressed by the general formula (8) or (9) are used for the purpose of expanding nematic range such as raising clearing point or for the purpose of adjusting optical anisotropy value. The general formula (10) are two rings compounds, the compounds are used principally for the purpose of adjusting threshold voltage, adjusting viscosity, or adjusting optical anisotropy value. Compounds expressed by the general formula (11) are used for the purpose of expanding nematic range such as raising clearing point or for the purpose of adjusting optical anisotropy value.

Compounds expressed by the general formula (12) are used for the purpose of lowering threshold voltage and for the purpose of increasing optical anisotropy value in addition to the purpose of expanding nematic range. Therefore, it would have been obvious to those skilled in the art to substitute the cyclohexyl for phenyl ring in the formula having a 2,3-difluorophenyl core in Examples 25-26 of the reference to arrive at the claimed invention.

With respect to claim 19, the reference differs from the claim in that the claim has three-pole active switch. The active matrix comprising three-pole switching element such

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as TFT is also known in the art (see US 5,883,686), it would have been obvious to those skilled in the art to use reference liquid crystal materials for the claimed device.

Therefore, it would have been obvious to those skilled in the art to utilize the reference teaching by selecting each component and its properties to meet their needs for the liquid crystal medium such as the claimed invention.

Response to Arguments

3. Applicant's arguments filed 4/3/2003 have been fully considered but they are not persuasive. First, Applicant argue that the reference fail to contain a compound of the present formula II together in a mixture with a dielectrically positive compound. Applicant's attention is directed to Examples 25 and 26 of the reference, which these two Examples have dielectrically negative and positive compounds mixed together. The only difference between the present invention and the reference Examples (25 and 26 on col. 53) is the present invention having a compound of the formula II, which has a negative dielectric constant. The cyclohexyl ring and phenyl ring taught in the formulae 10-12 (col. 32-33) having core structure 2,3-difluorophenyl are exchangeable. See formulae (10-1, 10-2), (11-1, 11-4), (11-2, 11-5), (11-1, 12-1) and (11-3, 12-3). Therefore, the rejections under 103 are still maintained.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

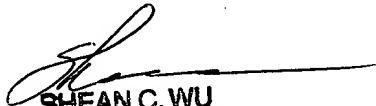
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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C Wu whose telephone number is 703-308-3956. The examiner can normally be reached on Monday-Friday 9:30 -6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


SHEAN C. WU
PRIMARY EXAMINER